



Memo

To: Paul Dabbs
From: Mike Wade *Mike*
Date: November 10, 2003
Re: B 160 comments

Per our discussion, enclosed are additional comments received from Alex Hildebrand and Bill DuBois on various B 160 chapters and the executive summary. Please let me know if you have any questions.

Thanks.

Alex

Executive Summary

Finding 7 should be deleted. It is unnecessary and out of context.

The key recommendations should be rewritten to incorporate the following thoughts.

- An additional 3 to 5 million acre-feet of water are needed annually for increased urban population and correcting groundwater overdraft. An additional _____ acre-feet are needed to produce an adequate supply of food and other essential farm products as required by AB2587 (2002). An additional, currently un-quantified amount is also needed for unmet environmental purposes. The total additional water needed is about _____ million acre-feet not including environmental purposes.
- The State remains committed to its role in funding and implementing the CALFED Bay-Delta Program.
- The State needs to recognize the critical role regions must play and provide appropriate support, both technical and financial. Current trends suggest much of the 13 to \$3 million acre-feet of additional water for urban use will come from water use efficiency, recycling, groundwater storage and system reoperation programs. The State must continue to assist regions with implementation of these and other resource management programs. These strategies will probably not offset the water currently being reallocated from the production of food to urban and environmental use.
- Targeted ecosystem improvements must be implemented in critical watershed areas in order to reduce the conflicts in the Bay-Delta system that affects operation of the SWP and CVP.
- Existing conveyance bottlenecks must be addressed in order to improve the opportunities to implement the resource management strategies identified in this Water Plan. The State and regions will play a role in addressing this key recommendation.
- The State must continue to work with regions to ensure source water quality is protected and enhanced. This will assure that a safe supply of drinking water is available for the State's population, as well as enhance recycling opportunities.
- ☐ ~~California needs to invest in a combination of strategies to provide 3 to 5 million acre-feet of water for increased population and correcting groundwater overdraft. An additional, currently un-quantified amount is also needed for unmet environmental purposes.~~
- ☐ ~~This Update identifies approximately 6 to 8 million acre-feet of additional annual water supply or conservation savings from strategies with High to Medium implementation confidence. Increases water use efficiency and recycling can provide up to 3 to 4 million acre-feet of that amount.~~
- ☐ ~~Additional strategies with Lower Implementation Confidence that may provide over 2 million acre-feet of water supply and efficiency improvement should be investigated to determine if they can be relied upon.~~
- These recommendations are consistent with current investment trends. More and more projects in the High Implementation Confidence category are being planned, funded and successfully implemented.

- The State must develop a scorecard that tracks progress in implementing the resource strategies that are discussed herein.
- As with any strategic plan anticipating a 2030 future, ~~these estimates cannot be exact~~ key recommendations can change in the future. However, they are based on the best available information and can serve to ~~prioritize~~ guide investment decisions. Future versions of the California Water Plan will update these ~~estimates~~ key recommendations.

The section on “Where to Californians Agree and Where Is There Disagreement” is unnecessary. At this point, it is more important to highlight the various water resource strategies and their broad “benefits” and potential for multiple benefits.

Overview

Overall, this section shows vast improvement over the previous version.

- Page 1-1 – Whether the Klamath and San Joaquin rivers are over allocated is a point-of-view judgment that should be neutralized.
- Page 1-1 – There is sufficient data available on how much and where overdraft is happening in the state. Bulletin 118 was just updated. There is certainly enough data available on this to satisfy the planning level of the Water Plan.
- Page 1-1 – There are numerous references in the Overview section to “investments” and “investment recommendations.” The focus should be on implementation rather than investment.
- Page 1-2 – The AC has not yet had adequate discussion on whether environmental requirements are or are not fully met in average years. Certainly this is true of dry years. Without an analysis of just what the biological needs are, I am unable to agree or disagree whether unmet needs exist in average years or not.
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Overview of the Water Plan for California, Bulletin 160-2003 Update 2003

Introduction

This update of a Water Plan for California is required by statute to estimate the water needed to meet the state's future needs and to propose measures that could supply that water (Water Code 10004.6).

Water is California's lifeblood. Safe, adequate and sustainable water supplies are essential to provide for our growing population, to preserve ~~agriculture~~ our ability to provide a safe and adequate supply of food and fiber, to maintain a healthy economy, and enhance our natural environment. Unless we prepare-plan now for the future and make ~~wise investment decisions~~ implement a prudent water resources investment strategy, Californians will experience a significant reduction in the quality of our lives, environment and economy.

~~This update of the California State Water Plan recommends identifies numerous water resources actions that are aimed at assuring an adequate, reliable and sustainable water supply for the full range of beneficial uses out to the year 2030. By that time population is expected to reach increase by 17 million to a total of 52 million (about 50% more people than we have today). The need to sustain our production of farm products to feed this population will be of vital importance. Unsustainable groundwater overdraft in the state runs from one to two million acre-feet per year. In dry years the shortages are much larger. Calls for increasing the amount of water dedicated to protecting and enhancing the environment, combined with the needs identified above, will add to the stresses and strains on the state's developed water system.~~

~~The recommendations in this California Water Plan were prepared based on the input of a 70 member Advisory Committee composed of representatives of agriculture, urban water agencies, businesses, environmentalists, Native Americans, environmental justice advocates, cities, counties, federal and state agencies, the Bay Delta Water Authority, academia, and different regions of the state.~~

California's population is forecasted to increase about 50% by year 2030. Californians will then need 50% more housing, 50% more goods and services, 50% more food and other essential farm products, and 50% more of other amenities that will be needed to sustain a vibrant economy and standard of living. These increases in need must be provided for as they occur. The natural environment and public trust values must also be protected. This is increasingly difficult as the growing population uses more water, and people spread over the landscape.

The first challenge in developing this ~~Update~~ update of the Water Plan was dealing with the uncertainties that surround California's water future. Although specific supply figures are difficult to predict from year-to-year, it is quite certain that California's currently developed water resources are insufficient to meet all future demands. Potential impacts on California's water supply brought about by ~~contaminants~~, international trade

agreements, climate change, environmental regulations and other factors could significantly change ~~the~~ both the amount of water available and the amount of water needed to meet the state's demands. Without question, the amount of water required to meet the state's future needs will be greater than at present.

In the past ~~when the State's population was lower~~, California's water system had an ~~overall abundance that resulted in sufficient flexibility to provide for most needs during times of drought, even extended droughts. Storage beyond year-to-year demands enabled the state to meet most of its needs even during times of extended drought.~~ That is no longer true. The recent 1987-92 drought demonstrated that the ~~state's~~ State's current water system is unable to protect consumptive and environmental uses from serious harm ~~if and when another extended drought occurs.~~

Estimating the increase in future water needs

In order to determine what increase in water supply is needed it is first necessary to evaluate the existing supply; the extent to which that supply is now adequate; the extent to which it is sustainable versus the extent to which it relies on overdrafting groundwater or on uncertain imports; and the extent to which water that will be needed in the future to produce food is now being reallocated for urban and environmental use.

The plan assesses existing water supply and use by geographic region. (Refer to Chapter). However, a statewide perspective is also necessary to determine the interregional dependence on the water needed to produce goods and services, food, environmental protections across regional boundaries, etc.

The best current estimate of increased water supply need in 2030 is that _____ million acre-feet more water will be needed for urban use, _____ million acre-feet more water will be needed to produce food and other essential farm products, and _____ million acre-feet will be needed for better environmental protection. (Refer to Chapters _____.) This adds to a total increase in needed water supply of _____ acre-feet. The total is based on present versus future net water consumption and irrecoverable losses, such as outflow to San Francisco Bay in excess of established outflow requirements. Water which is applied but is recovered and reused is not included in the net water use figures.

Balanced portfolio of water management strategies to meet needs.

Water is managed to achieve various benefits. Management proposals (strategies) are often justified for multiple benefits. The Water Plan must be compatible with meeting worthwhile benefits other than water supply. However, the Plan's responsibility relates to providing an adequate water supply. Analyses of strategies by the Water Plan must therefore be in terms of contributions or demands on the state's water supply.

California is able to meet many, but not all of its water demand in most years. ~~Reduced~~ Insufficient developed surface water supplies have caused water users to rely on groundwater to meet ~~normal~~ demands during most years. The ~~Year-year~~ 2000 was a year

with average precipitation in most areas of the state. Urban uses by the 35 million Californians totaled X million acre-feet; agriculture used about XX million acre-feet, with the balance of the ~~state's~~ State's supply going to meet environmental water demands. As a result, groundwater overdraft in the amount of X million acre-feet was needed to meet full urban and agricultural demands. Even in wet years such as 1998, groundwater overdraft occurs in large areas of the state.

Each year our population increases by about 600,000 people. This means that by the year 2030 we will add another 17 million to our current population of 35 million. The state will need an additional 2.42 to 3 million acre-feet to provide for their urban water use, if the new Californians were to use currently available efficiency technologies (e.g., ultra low flow toilets, showerheads, etc.). This is a best-case scenario. Add the current 1 to 2 million acre-feet of unsustainable groundwater overdraft. Another million acre-feet will be needed to produce food per AB2587 (2002). ~~and~~ The state will need a total of about million acre-feet more water in 2030 than it uses now. ~~3 to 45 million acre-feet of additional water each and every year to meet its future consumptive needs.~~ Additional water may be needed to restore degraded ecosystems. Without this additional water, groundwater overdraft could worsen, aquatic environments could be further stressed, and agriculture's ability to produce a reliable, affordable domestic supply of food for our urban population could suffer.

The ~~state~~State and the Advisory Committee have identified numerous ~~proven~~ water management strategies that can be implemented both at the ~~state~~State and regional levels to improve the water supply outlook. These include, among other strategies, improving water use efficiency in both the agricultural and urban sectors, modifying the operation of the existing water supply systems to capture water that is now lost, water recycling, and expanding groundwater storage and conjunctive use programs, and new surface storage.

Surface and subsurface storage can provide other benefits, but it only provides a new net long-term water supply if it is filled with water that would otherwise be lost, such as loss by excess outflow to the Bay. Similarly, reductions in the application of water that is not consumed or irrecoverably lost can only provide new net long-term water supply to the extent that the water is not already being recaptured and reused. This is true regardless of whether the water was applied for urban, farm, or environmental use.

The Water Plan objective differs from CalFed's (California Bay-Delta Authority) objective in that the Water Plan must propose an adequate water supply for all regions and uses, whereas CalFed is focused primarily on environmental benefits consistent with exports on less than a statewide basis. Nevertheless, the Water Plan is compatible with CalFed.

Additional surface water storage, especially those being pursued by the California Bay-Delta Authority, was also identified as important for the state to evaluate for future implementation. These will be pursued for implementation if they meet technical, environmental and economic criteria. Although these projects are designed to achieve ecosystem and water quality objectives, they may also provide operational flexibility to

increase the state's useable water supply. Other non-CalFed surface storage projects may will be evaluated that are needed in the long-term.

The State is also committed to its role in implementing the California Bay-Delta Authority's various programs, as specified in the CALFED Bay-Delta Program's Record of Decision. These programs include projects aimed at improving water supplies, conveyance, water quality, watershed health, the Bay-Delta ecosystem, and water use efficiency. Particularly important are those actions identified for implementation during Stage 1 of the Bay-Delta Program (first seven years). These will set the stage for additional improvements during the remainder of the 30-year Program.

~~Other strategies are likely to mature in the next three decades. These include ocean water desalination and additional weather modification.~~

Populations of aquatic species of concern (e.g., Winter run salmon, Delta smelt) have been rebounding after plummeting during the 1987-92 drought. The Bay-Delta Program's early emphasis on ecosystem restoration has played a significant role in this recovery. Particularly exciting has been the Bay-Delta Program's findings on the impacts of targeted ecosystem restoration activities in achieving fishery population benefits. It is becoming clearer that restrictions at the export pumps of the SWP and CVP may be less important in achieving these benefits, leading to improved water supply reliability.

Emphasis on regional planning

The reality of current and future water planning is that projects are primarily typically being designed and implemented at the regional level. Thus this Water Plan emphasizes regional planning, and acknowledges the State's role in realizing the potential of regional efforts. However, the state must still do what the regions cannot do for themselves, including planning for an adequate statewide supply for both direct and indirect water needs.

Grant and loan applications that the State has received for various water supply enhancement and demand reduction projects indicates that most projects today are designed to achieve multiple benefits. Cost-effectiveness can be difficult to evaluate for multi-benefit projects. However, the multiple challenges the state-State faces in providing a safe, adequate and reliable water supply, coupled with the interconnectedness of the State's developed water systems, demands that multiple benefit strategies be prioritized pursued for implementation.

Included in this update-Water Plan are 25 categories of strategies for meeting human and environmental water needs. Some of these strategies are in part different ways of achieving the same water supply benefit. The benefits must therefore not be added. These are characterized on Table 1 ("Implementation Plan and Investment Guide") as short-, medium- and long-term investments. Included in each description is how much water or other benefits can be achieved on a statewide basis and how much it costs. The state-State estimates it will have to spend about \$1 billion annually (in addition to federal and local cost shares) in order to achieve the full range of benefits identified in Table 1.

This does not include funds needed for maintenance of the existing water infrastructure.
(Consider John's comments on this.)

The range of implementation of any individual strategy will be unique for each region of the state~~State~~, and will depend on numerous factors, such as cost-effectiveness, applicability, ~~and implementability~~ and regional goals. Maximum flexibility and sustainability is achieved when regions diversify their water portfolios. This is a key concept in the Water Plan. Resource managers ~~need~~ are encouraged to examine all of these strategies to identify the best mix for their regions. The more a region can diversify its portfolio, the more robust and resilient it will be in facing future unknowns.

As part of this approach it is also important to recognize that there are challenges associated with implementing each of these strategies. For instance, with water transfers there are concerns with third party impacts. With ocean desalination there are issues with water intakes and brine disposal. For new surface water storage projects there are questions about impacts of diversions on the rivers that would provide the water. With agricultural water conservation there are potential impacts on downstream users (agricultural, urban and environmental) that depend on return flows to meet their water supply needs.

Also, it must be recognized that implementation of some strategies will be difficult and expensive. Many strategies will need to be pursued in parallel in order to match available water supplies to demands over time. Some strategies, such as water use efficiency, will be continuously implemented throughout the span of this Plan.

All of these strategies must be evaluated completely so that the merits of each are weighed against their potential impacts. Evaluations must include a consideration of what a strategy has to offer in terms of supply reliability, system flexibility and yield in order to determine its priority for implementation. This is wise fiscal policy.

In addition to identifying the issues, this ~~Update Water Plan~~ contains recommendations on ways these strategies can be implemented to minimize the impacts.

To accommodate the uncertainties with each of these strategies it is prudent to pursue, at least through the planning stages, an extra margin of water supply, demand reduction and ecosystem restoration capability.

The recommendations in this California Water Plan were prepared based on the input of a 70 member Advisory Committee composed of representatives of agriculture, urban water agencies, businesses, environmentalists, Native Americans, environmental justice advocates, cities, counties, federal and state agencies, the Bay-Delta Water Authority, academia, and different regions of the state.

Implementation Plan and Investment Guide To Meet the State's Water Needs

Resource Management Strategy	Potential Benefits
Initial Short-Term Investments (to 2010)	
Agricultural Water Use Efficiency	A, B, E, K, T
Conveyance	
• SWP/CVP Intertie (CALFED)	L, M
• H.O. Banks 8,500 cfs (CALFED)	B, L, M, T
• Screened Intake Clifton Court (CALFED)	D, L, M
• Joint Point of Diversion (CALFED)	B, L, M
• Reduce Agricultural Drainage in Delta (CALFED)	E, T, U
• Improved Delta Cross Channel Operations Procedures (CALFED)	G
• San Felipe Unit Bypass (CALFED)	L, T
Desalting (brackish water)	J, K
Ecosystem Restoration (CALFED)	
• Habitat Restoration (CALFED)	C, D, L, M
• Fish Passage Improvements (CALFED)	A, C
• Invasive Species Program (CALFED)	F
• Environmental Water Account (CALFED)	A, B, M
Floodplain Management	C
Recycling (municipal water)	J, K
Science (CALFED)	A, B, C, L, M
Storage	
• Groundwater (CALFED)	A, B, K, L, T
• Conjunctive Management (CALFED)	A, B, K, L, T
• Groundwater (Local)	A, B, K, L, T
• Conjunctive Management (Local)	A, B, K, L, T
System Reoperation	
• Napa Agreement	B, J, L
Urban Runoff Management	J, T
Urban Water Use Efficiency	J, K
Watershed Management (CALFED)	A, C, E, J, T
Water Transfers	
• Governor's Drought Contingency Plan	K
• Phase 8 Agreement (short-term)	J, L
• Water quality exchanges (CALFED)	T
Additional Medium-Term Investments (to 2020)	
Conveyance	
• Permanent Operable Barriers	A, J, T
Desalination (ocean water)	J, K, L
Precipitation enhancement	A, J
Recycling	
• Bay Area Blending Program (CALFED)	J, K, M
Storage	
• Delta Wetlands (CALFED)	B, C, L
• Sites Reservoir (CALFED)	A, B, J, L, T
• Enlarged Los Vaqueros (CALFED)	L, M, T
• Expanded Groundwater Storage (CALFED)	A, B, K, L, T

• Expanded Groundwater Storage (Local)	A, B, K, L, T
System Reoperation	
• System Wide Conjunctive Management	B, J, L
Water Transfers	
• Phase 8 Agreement (long-term)	J, L, T
• Expanded Dry Year Transfers	J, L, T
Additional Long-Term Investments (to 2030)	
Additional Conjunctive Management	
Storage	
• Upper San Joaquin (CALFED)	A, B, J, L, T
• Enlarged Lake Shasta (CALFED)	A, B, J, L, T

Key – Potential Benefits		
Environmental	Water Supply	Water Quality
A – Instream flows	J – Annual supply	T – Source quality
B – Flow timing	K – Drought supply	U – Reduced pollution
C – Habitat improvements	L – System Flexibility	
D – Reduced predation	M – System Reliability	
E – Flow quality		
F – Reduced competition		
G – Increased survival		